

Military Installations & Communities - Dynamics Across the Fence Line

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American,
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4th, 2003**

**Workshop on Ecosystem Challenges for
Defense Installations**

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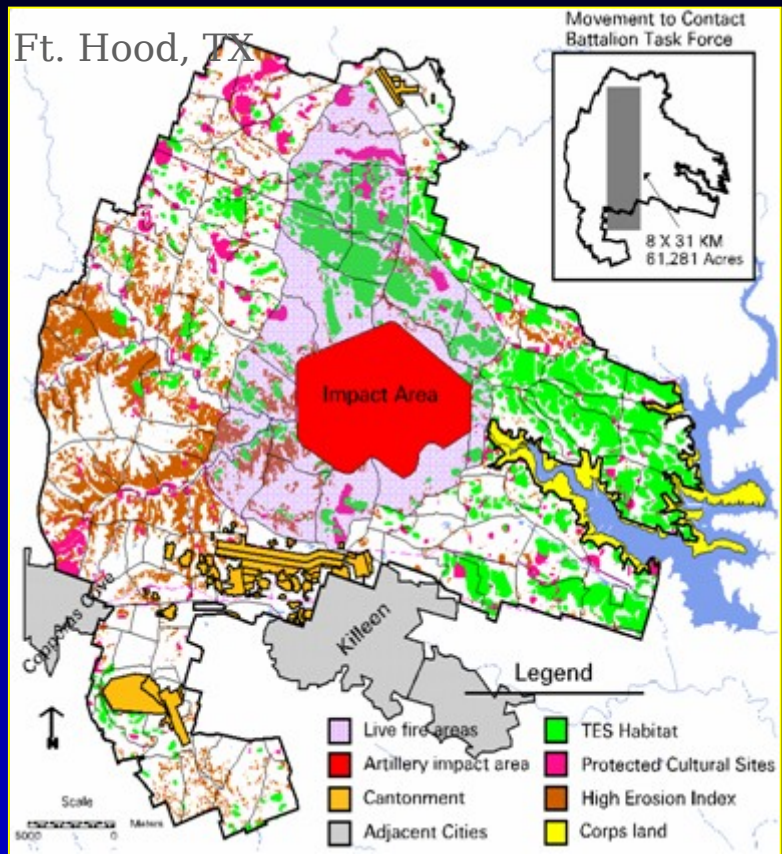


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of Engineers**

John Brent

**Engineer Research & Development
Ft. Benning, Division of Environmental Management**

Increasing Land Use Constraints



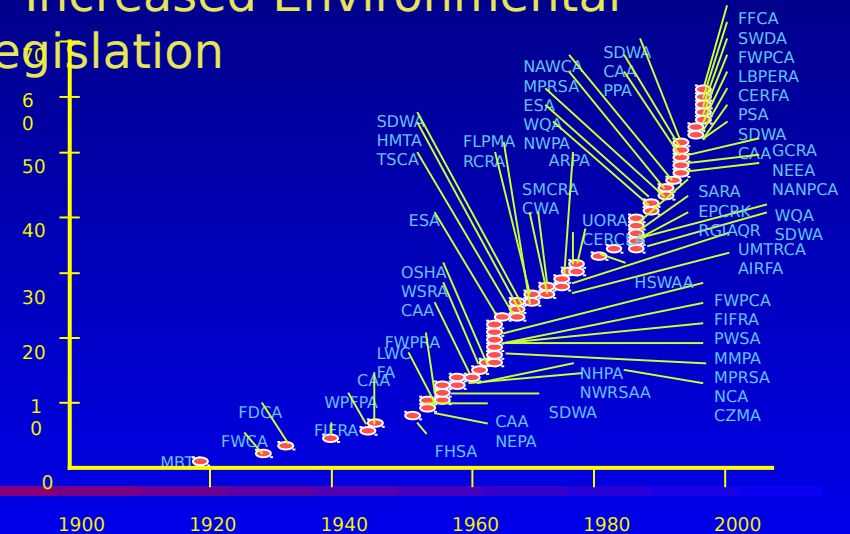
Mission

- Constrained Access to Lands
- Limits on Use of Ranges
- Inability to Train to Doctrine
- Increased Equipment Damage

Stewardship

- Protect Sensitive Resources
- Cumulative Impacts and NEPA
- Integrated Land Use Management
- Increased Environmental

Legislation



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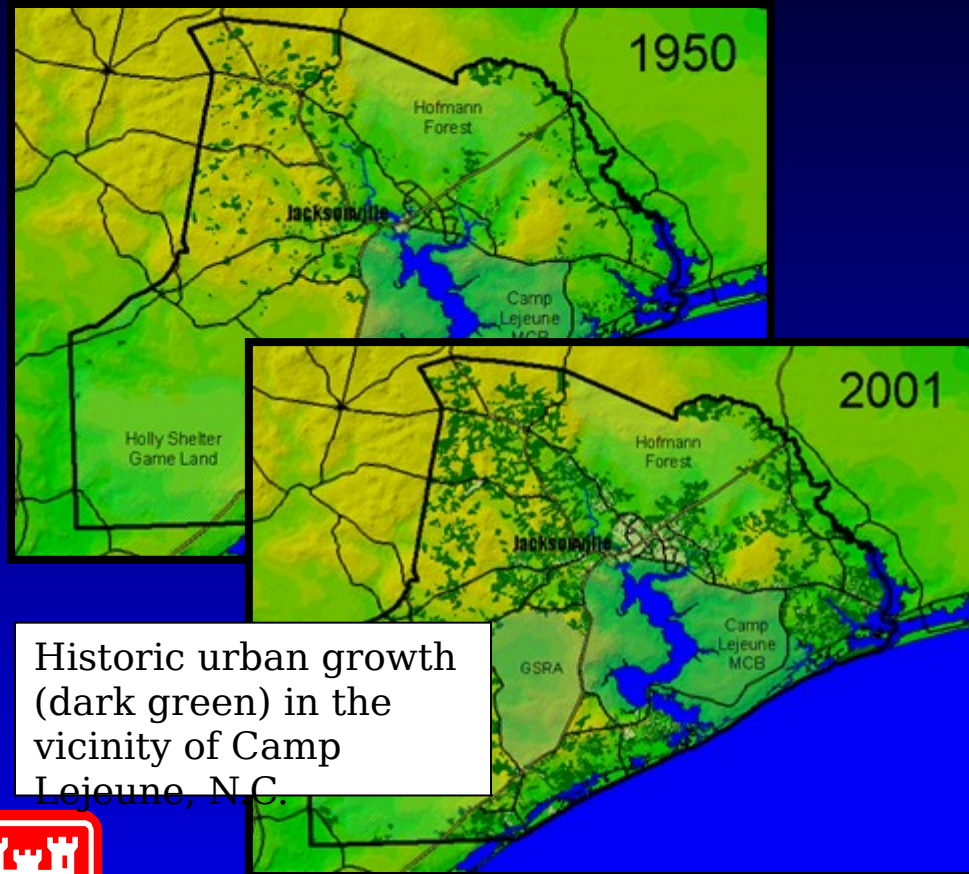
Encroachment

- External pressures impacting the military services' ability to maintain force readiness.
- Encroachment is defined by Defense Senior Readiness Oversight Council as:

“Any outside activity, law, or pressure that affects the ability of military forces to train to doctrinal standards or to perform the mission



Trends in Land Use Around Military Installations



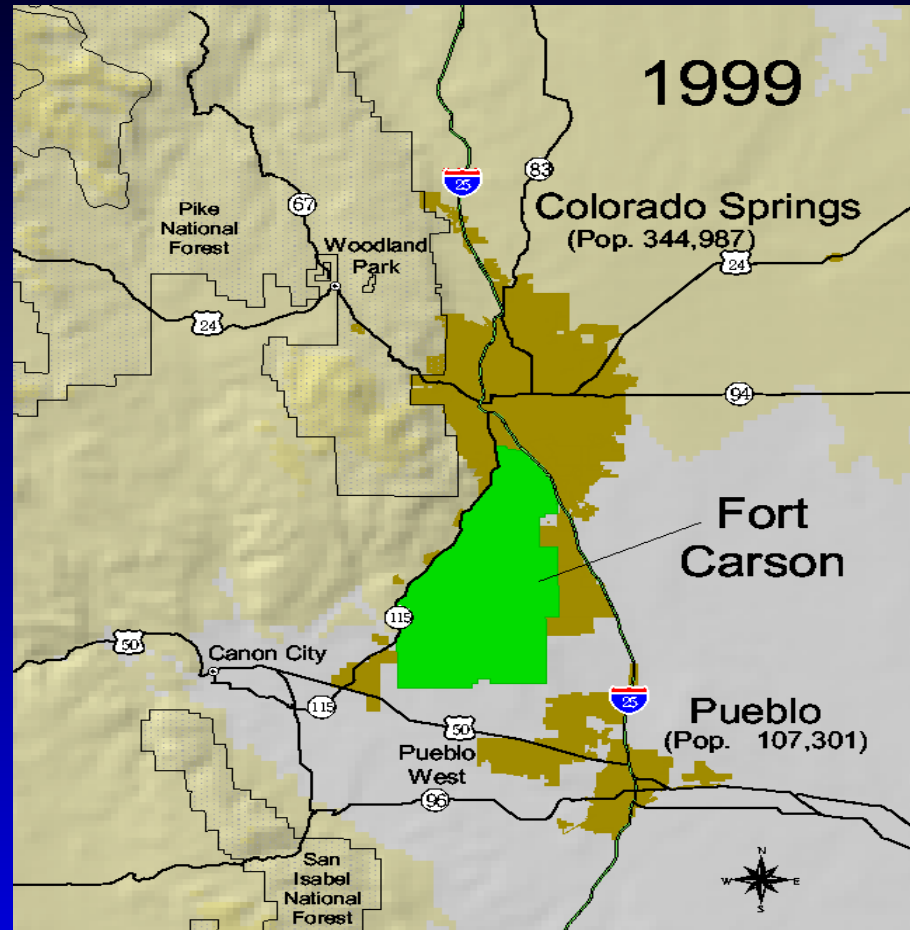
- Trends are drawn from the analysis of:
 - historic land use
 - land cover
 - satellite imagery
- Results are presented in images and video



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Changing Land Use Trends Around Ft. Carson, Colorado

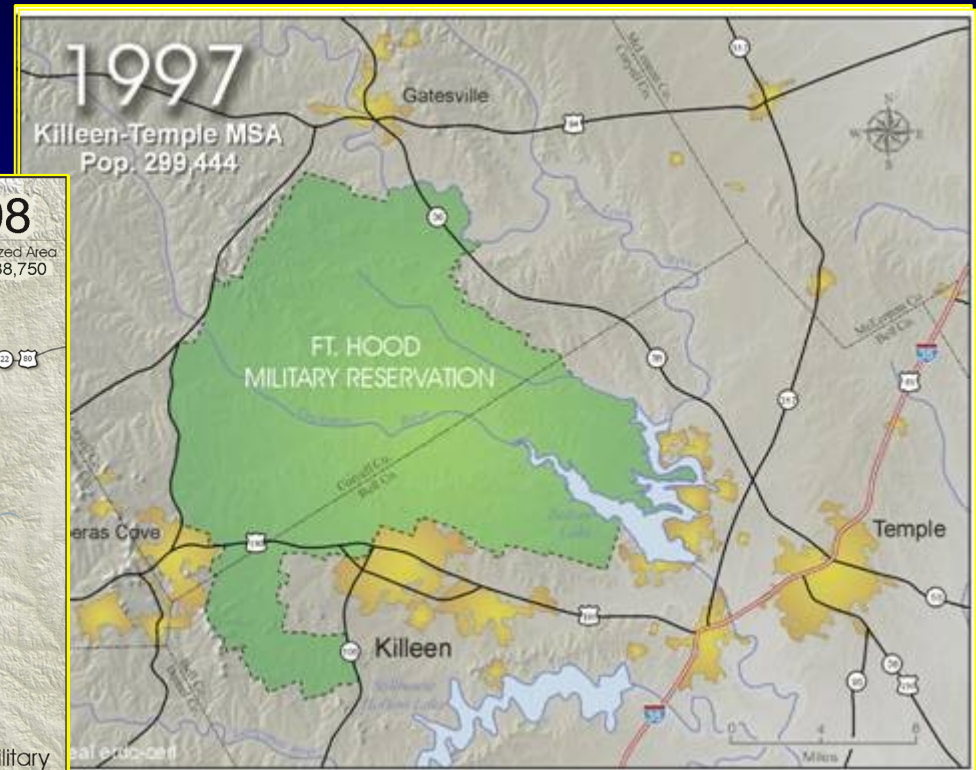
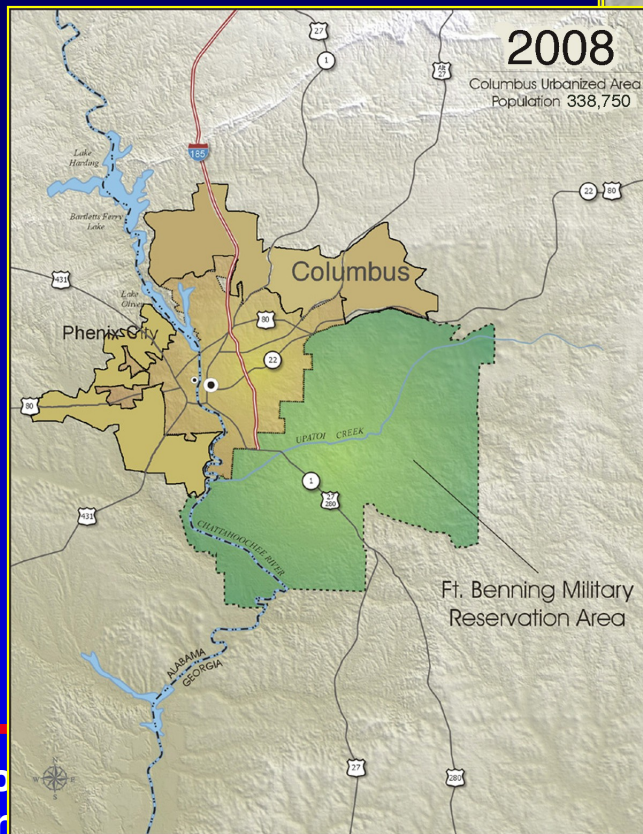


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Geographic Time Series Analysis

- Historic Mapping

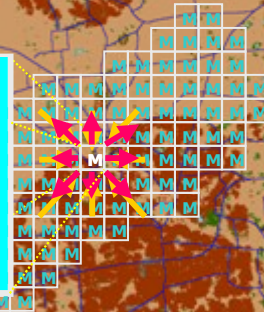
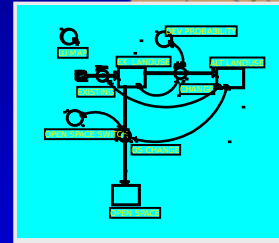
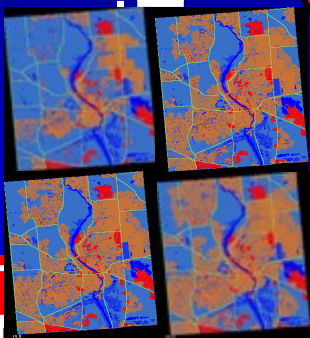
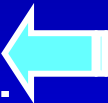
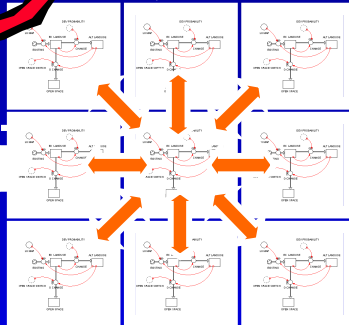
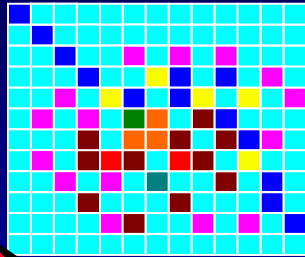
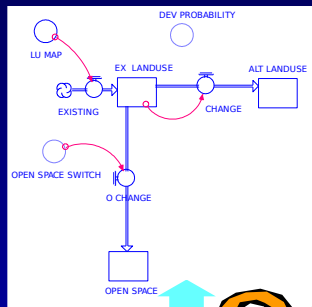


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LEAM

Land Evolution and Assessment Model



1. STELLA™ model present in each cell of the lattice.
2. Each model interacts with every other model through SME.
3. Thus, the spatial behavior of a phenomenon can be depicted.



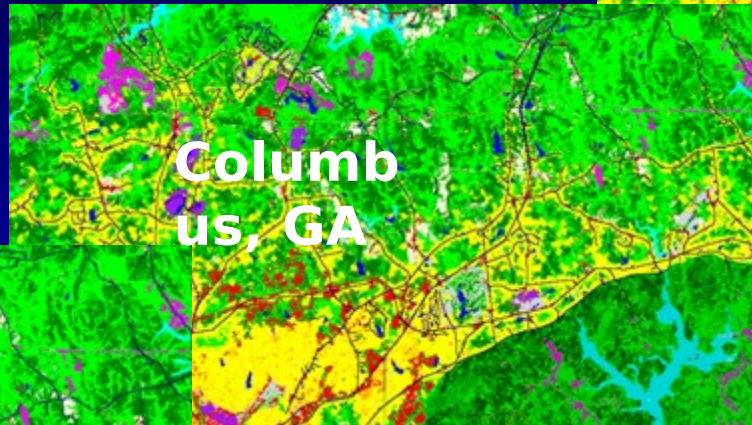
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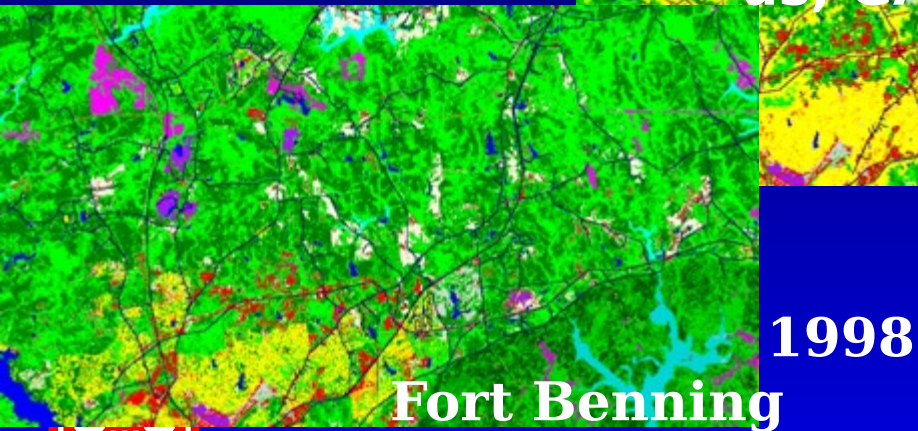


Fort Benning Area Land Use Change Simulation

2040



2020



1998

Fort Benning



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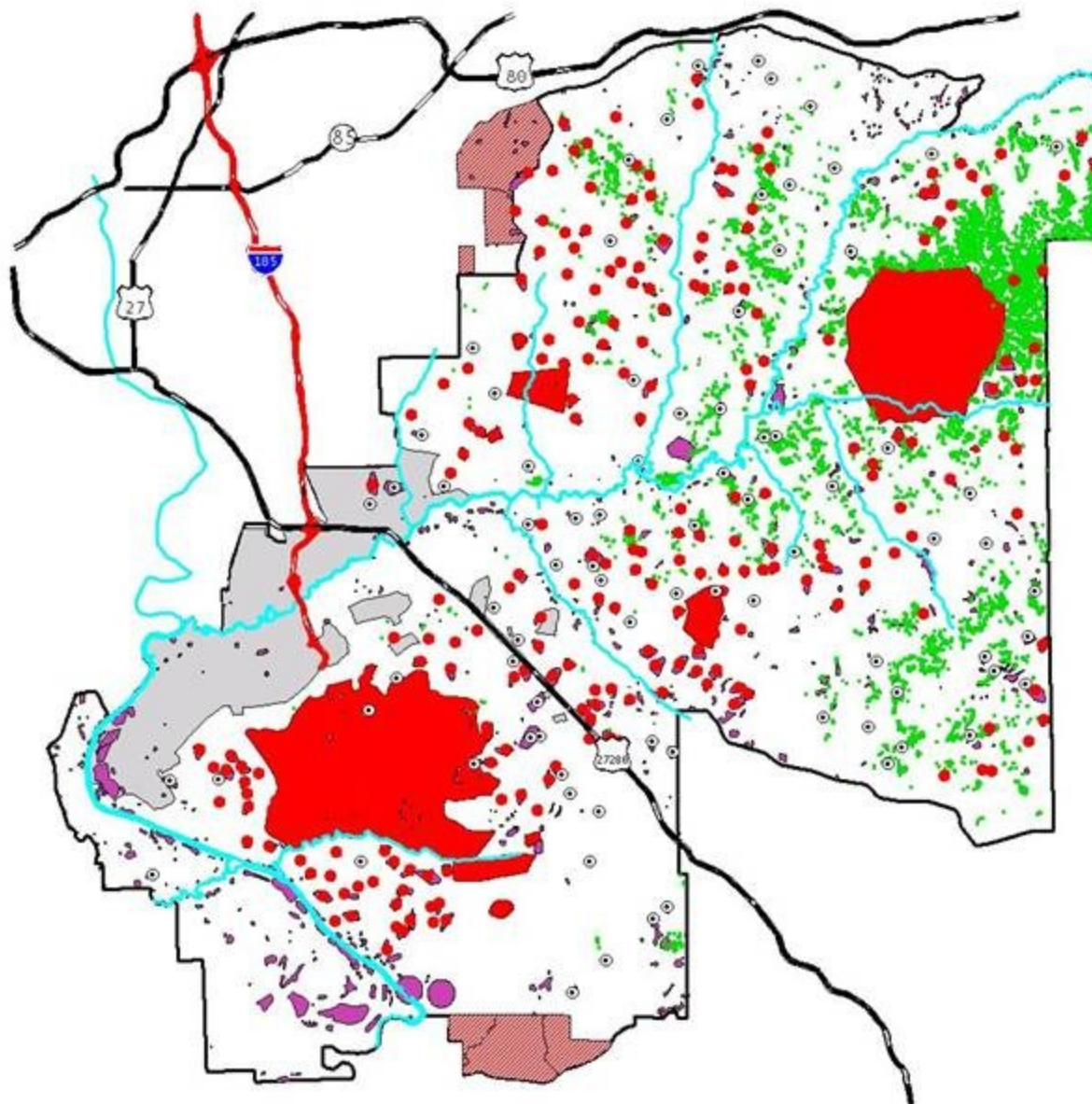
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Data Requirements for LEAM Projections

- Land Use Land Cover. Source: USGS, national coverage 1993 and 2000.
- Population and Population Trends. Source: Census Bureau, every decade, every county.
- Digital Elevation Models. Source: USGS, national level, multiple resolutions.
- Roads and Transportation Facilities. Several national sources.
- Public land holding: federal, state and local sources.







Natural Resources

Major Roads

2-lane-hwy

4-lane-hwy

Interstate

Major Streams

RCW Management Points

Active

Inactive

Gopher Tortoise

Ecologically Sensitive Areas

Cantonment

Landswap

Dud Areas

Installation

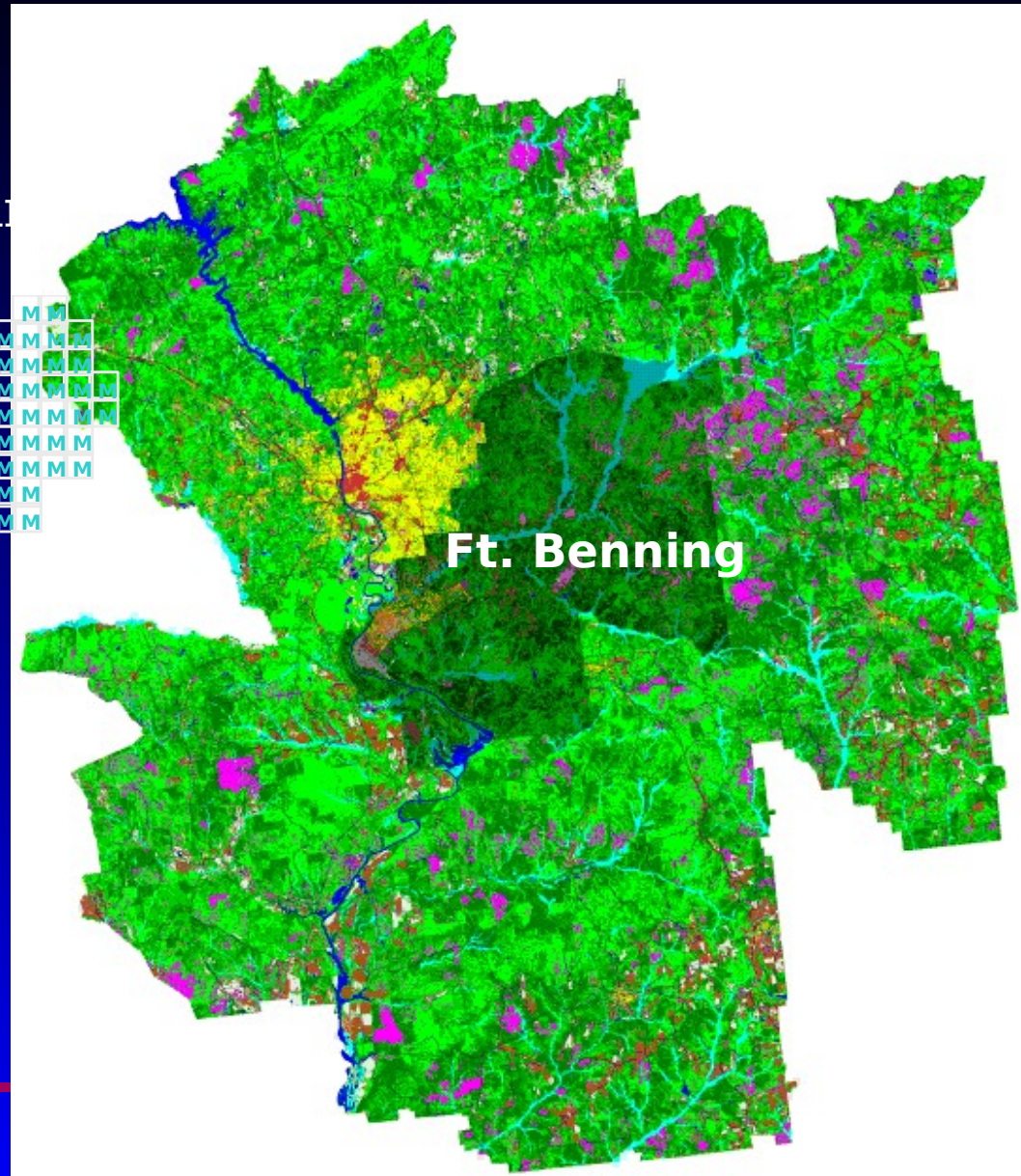
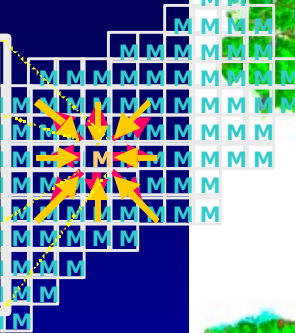
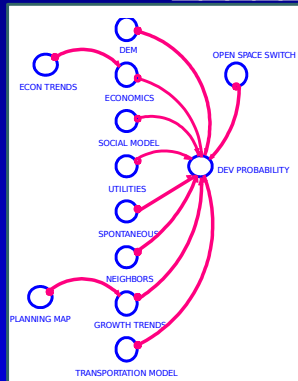
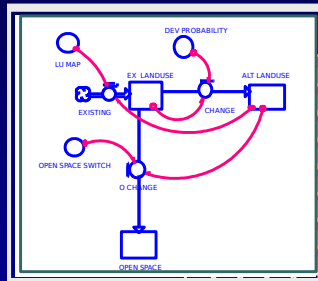
5 0 5 10 15 Miles



current model

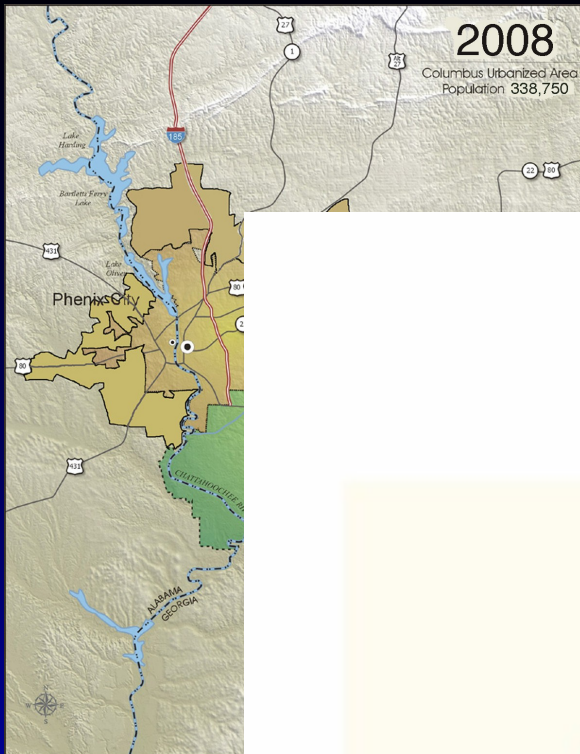
Columbus/Ft Benning

8 million cells - 40 years



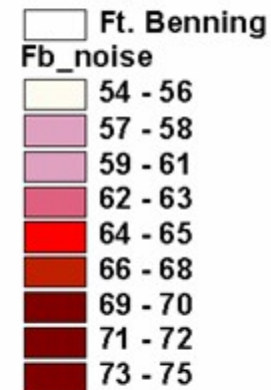
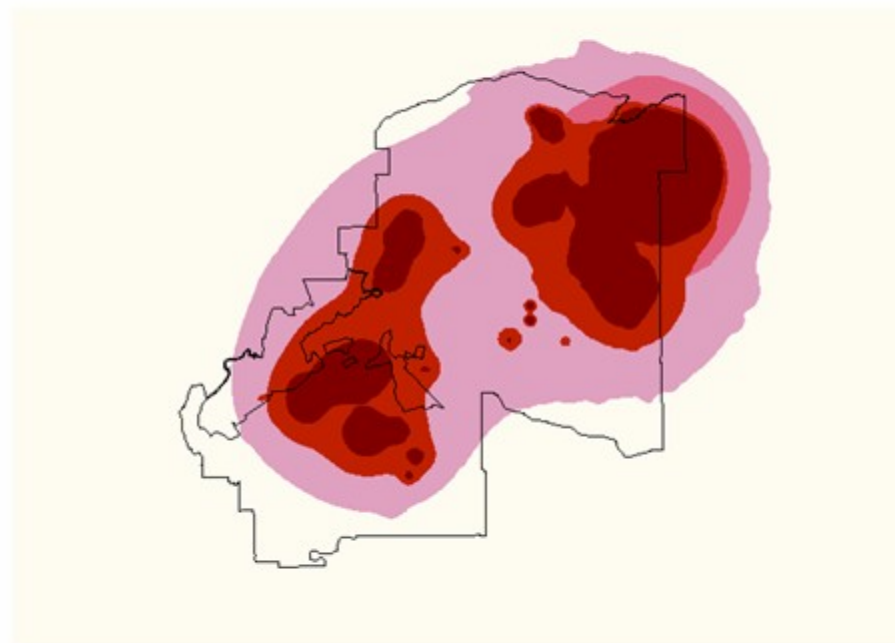
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Noise Contours from Multi-Purpose Range Complex, Ft.

Noise



Projected
Growth
For
Columbus



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Identify Impacts on Training and Testing

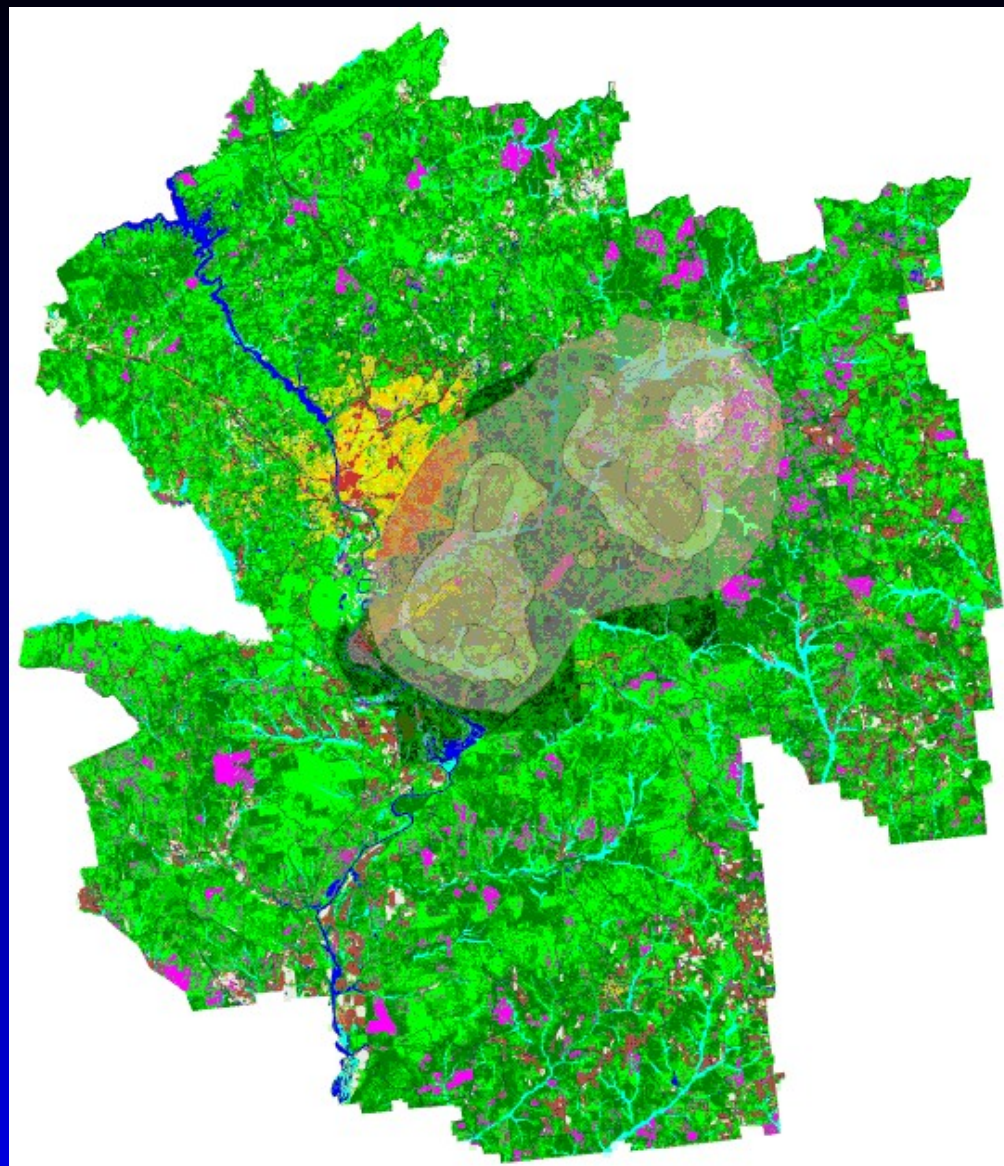
- Impact on current/planned training
 - Noise vs Community Growth



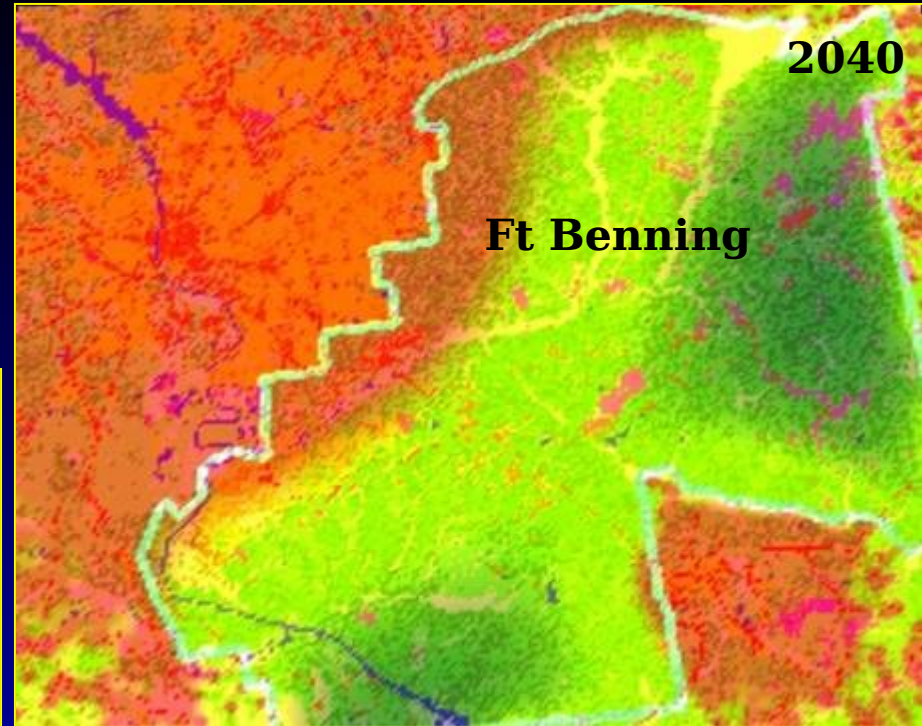
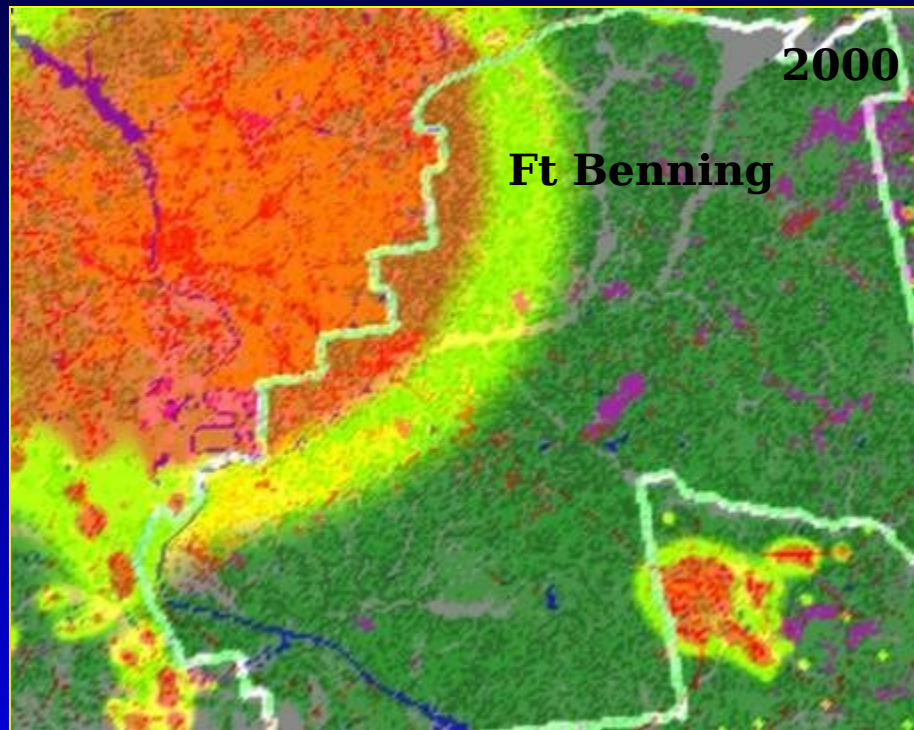
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1993-2050

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Identify Impacts on Training and Testing



- Loss of future training opportunities due to possible noise related conflicts



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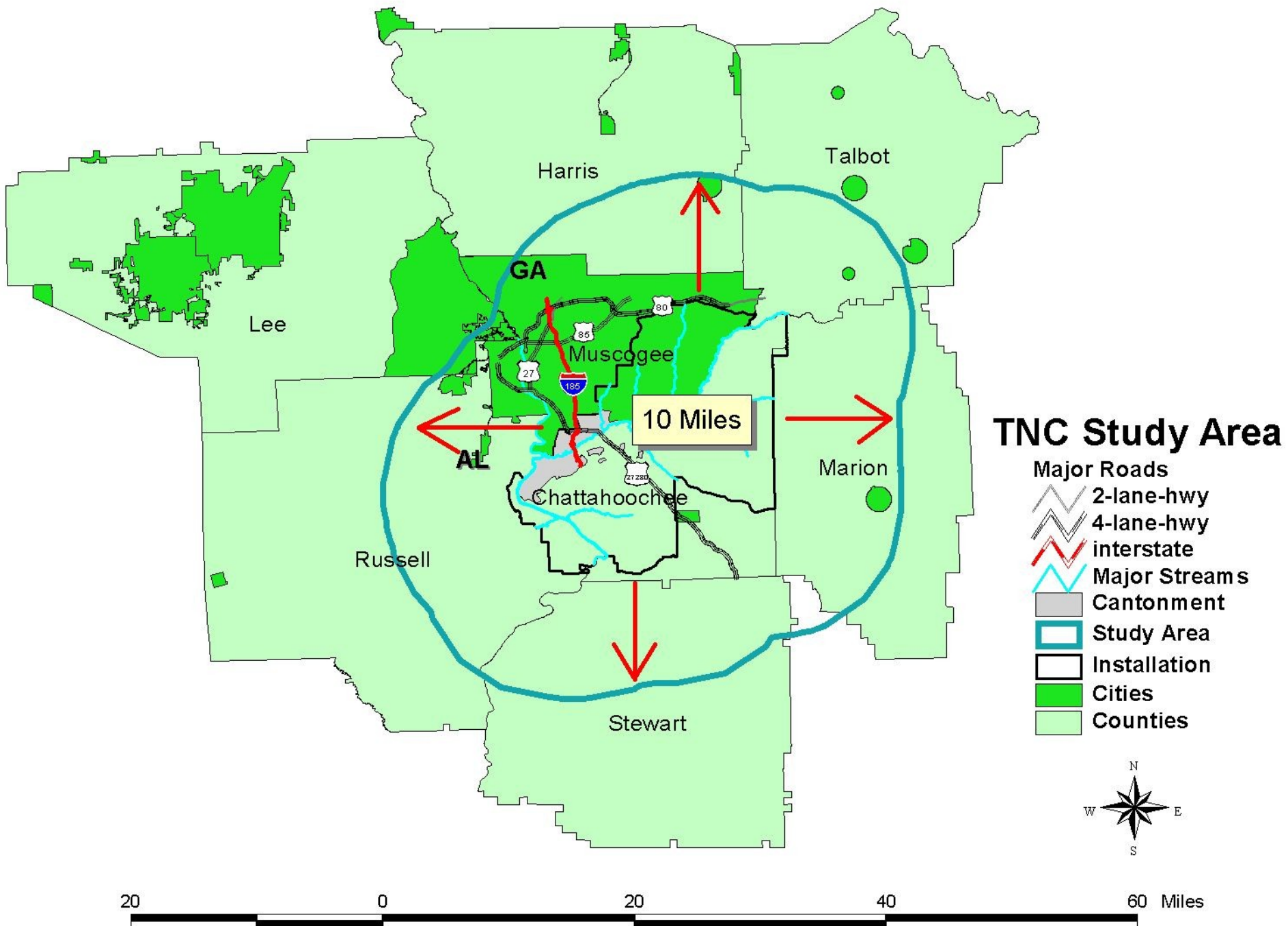
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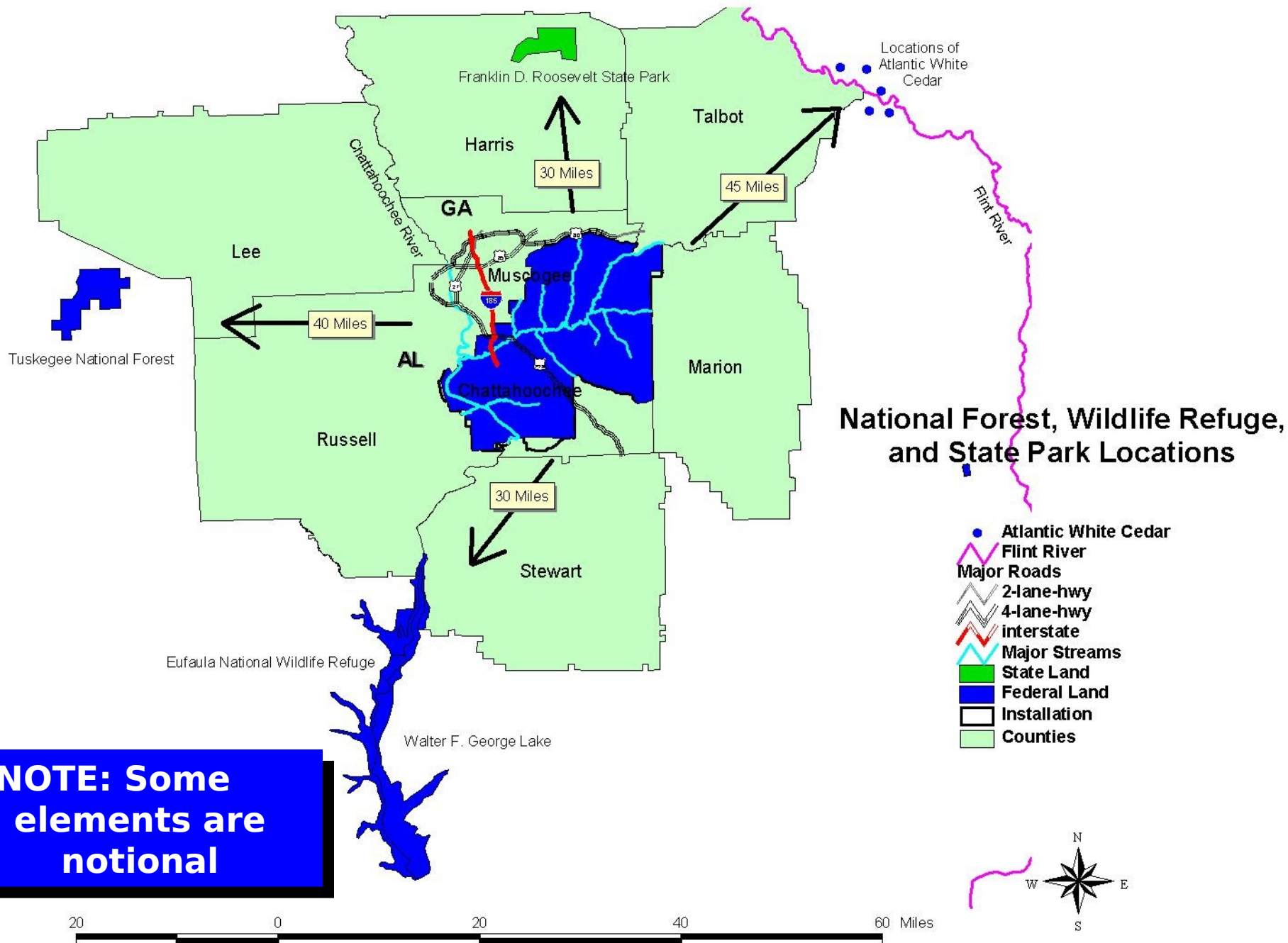
Identify Impacts on Training & Testing

Encroachment issues involve:

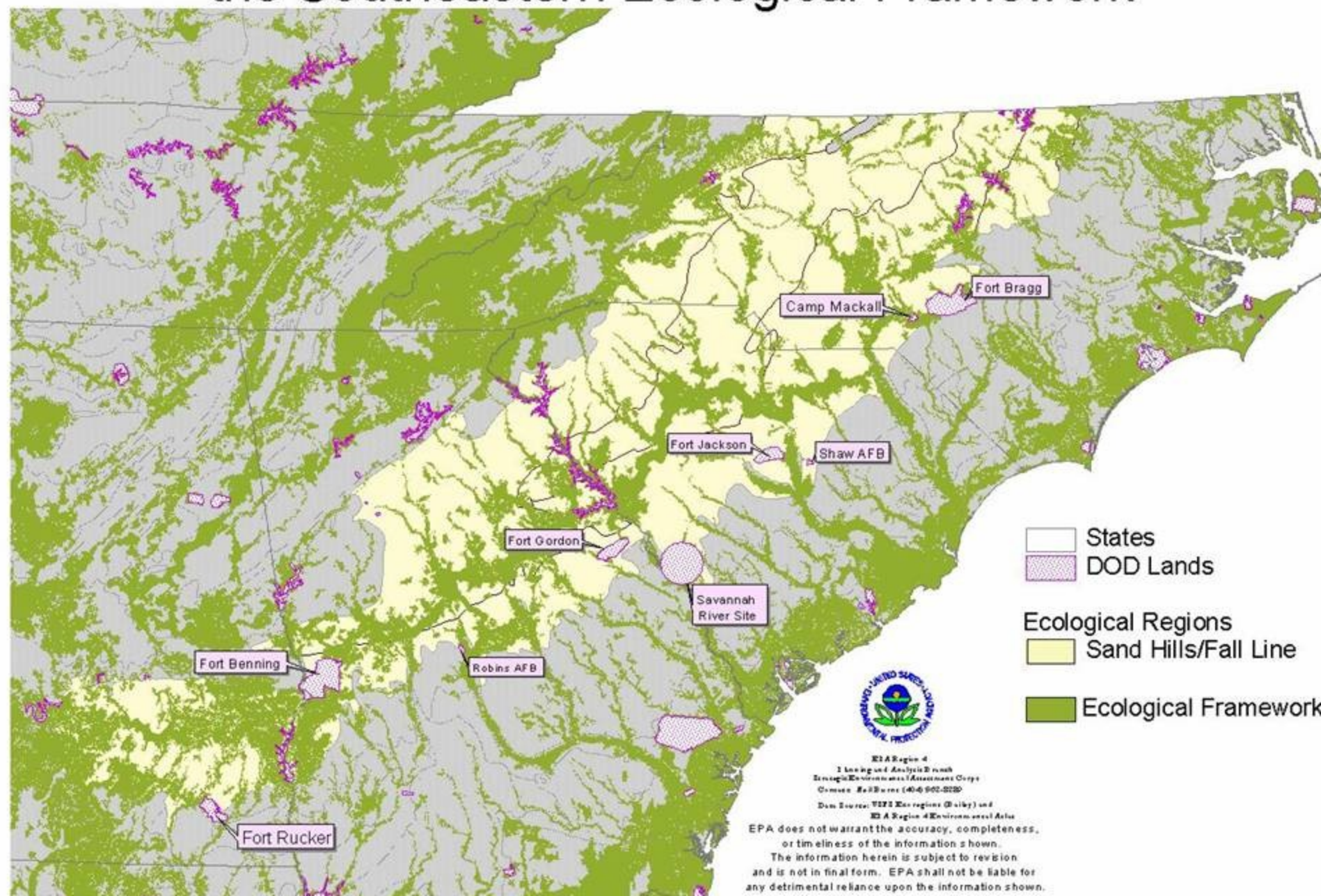
- Habitat (TES)
- Dust, smokes, and obscurants
- Radio and television frequency
- Air space for airfield operation
- Blast and small arms noise
- Community interaction
- City and aircraft lights



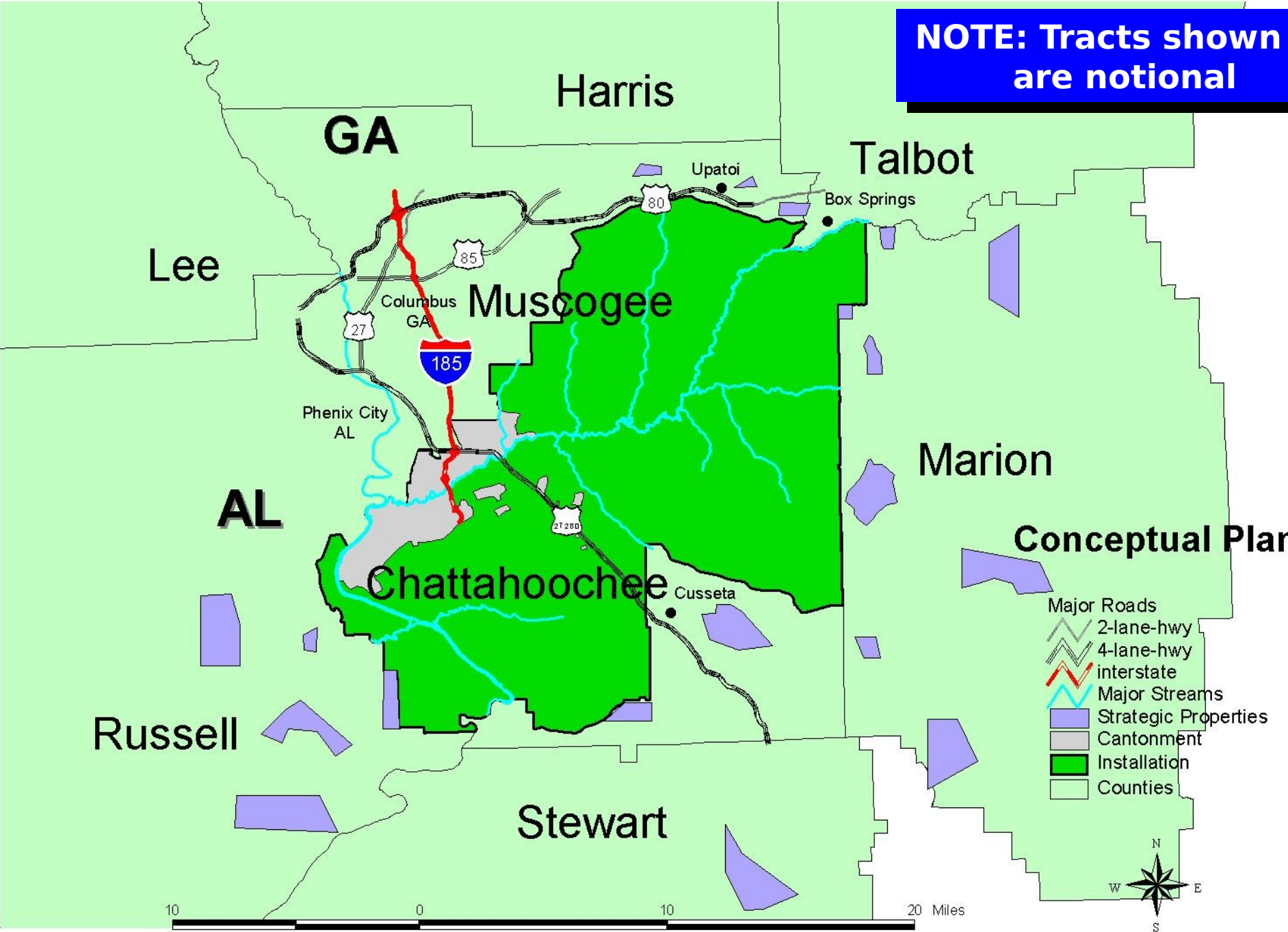




Potential DOD Partners Along the Fall Line Ecoregion and the Southeastern Ecological Framework



NOTE: Tracts shown are notional



Develop Mitigation Plans

At the multiple-decade scale, long-term mitigation options can include a number of options including:

- Changes or constraints of property right ownerships
- Expansion of installation lands (to increase buffer areas and ensure sustained use)
- Collaborative development of parks, wildlife areas, forests
- Altered location of highways and utilities



Bottom Line

- Prediction and planning a critical strategic component for sustainability.
- Everyone has their own interest that often result in conflicts and/or restrictions.
- Ignoring conditions outside the “fence-line” will result in land use conflicts.
- Installation land management must occur in cooperation with neighbors, political and local interest groups.

